Remarks

Applicant has cancelled claims relating to non-elected inventions. Applicant reserves the right to pursue the subject matter of such claims in continuing applications.

Claims 1, 115, 123, 130, 135, 137, 139, 144, 147, 149 and 154 have been amended. Support for these amendments can be found in the specification at least on page 34 lines 10-18 (claims 1, 115 and 130), and page 30 lines 12-14 and page 71 line 31 through to page 72 line 3 (claims 137 and 147). Claims 123, 135, 139, 144, 149 and 154 are amended to correct typographical errors.

New claims 162-169 are added. Support for these new claims can be found in the specification at least on page 32 lines 1-2, page 72 lines 6-20, and claim 2.

No new matter has been added.

Claim Objection

Claim 124 is objected to for the recitation of "lineally". This is a typographical error and Applicant has amended the claim to recite "linearly". Reconsideration and withdrawal of the objection is respectfully requested.

Rejection under 35 U.S.C. § 112, second paragraph

Claim 121 is rejected under 35 U.S.C. § 112, second paragraph, as being indefinite in the recitation of "polymer dependent impulses include an order of polymer dependent impulses". The Examiner considers this phrase indefinite because of the term "order". As suggested by the Examiner, the term is intended to refer to an order of impulses collected in a sequential manner as monomer units pass by the station.

Reconsideration and withdrawal of the rejection are respectfully requested.

Rejections under 35 U.S.C. § 102

Mergny et al., Nucleic Acids Research, 23:920-928 (1994):

Claim 98 is rejected under 35 U.S.C. 102(b) as being anticipated by Mergny et al.

Without conceding the Examiner's position and rather in the interest of expediting prosecution, Applicant now cancels claim 98. Withdrawal of the rejection is respectfully requested.

Huang et al., Anal. Chem. 64:2149-2154 1992):

Claims 1, 2, 130-134, 137-143, 147-153 and 161 are rejected under 35 U.S.C. § 102(b) as being anticipated by Huang et al.

Huang et al. relates to the use of capillary array gel electrophoresis of chain terminated DNA fragments for the purpose of DNA sequencing. The results of such a method are shown in Figure 3. The method is not a linear analysis of a polymer as envisioned by the instant invention. This is because it does not provide information about the location of labels (whether intrinsic or extrinsic) on a polymer. Rather the method is intended to separate fragments according to size (and charge, in the context of a DNA). The fragments are deliberately generated with an intrinsic label at a known location by the use of labeled primers. The only difference between the fragments is their length which controls the extent of their migration in the gel. The difference in their lengths comes about by the deliberate chain termination process used in the synthesis of the fragments. Each of the bands shown in Figure 3 represents a fragment in its entirety. Accordingly, the method does not analyze an intact polymer in a linear manner in order to determine presence or absence of one or more units along the length of the polymer or the relationship of those units with other units in the same or a different polymer.

In view of the foregoing, with respect to claim 1 (and its dependent claims), Huang et al. does not teach "distinguishing said signal from signals arising from exposure of *adjacent signal generating units of the polymer* to the station" because Huang et al. does not analyze separate units of a single intact polymer. With respect to claims 130, 137 and 140 (and their dependent claims), Applicant has amended the claims to further clarify the linear analysis of polymers. Huang et al. does not teach "measuring a polymer dependent impulse generated *as each of two individual units within the polymer*, each giving rise to a characteristic signal, pass by the station", as recited in claim 130, because Huang et al. does not analyze separate units of a single intact polymer. For the same reasons, Huang et al. also does not teach "*linearly analyzing each polymer*", as recited in claims 137 and 140.

New claim 162 (and its dependent claims) is not anticipated by Huang et al. at least because Huang et al. does not teach analysis of polymers bound with labeled unit specific markers.

Reconsideration and withdrawal of the rejection are respectfully requested.

Yeung et al., U.S. Patent No.: 5324401:

Claims 1, 2, 130-133, 135-142, 144-146, 149-152, 154-156 and 161 are rejected under 35 U.S.C. § 102(b) as being anticipated by Yeung et al.

Yeung et al. relates to a detection system for capillary array electrophoresis. Yeung et al. reports capillary array electrophoresis of chain terminated DNA fragments for the purpose of DNA sequencing. Yeung et al. also reports the ability to separate fluorescein and riboflavin from a sample using capillary array electrophoresis. As discussed above for Huang et al., the method is not a linear analysis of a polymer as envisioned by the instant invention. This is because it does not provide information about the location of labels (whether intrinsic or extrinsic) on a polymer. Rather the method is intended to separate fragments (or fluorescent species) according to size (and/or charge). The species being separated are either deliberately generated with an intrinsic label at a known location by the use of labeled primers or they are inherently fluorescent. Accordingly, the method does not analyze an intact polymer in a linear manner in order to determine presence or absence of one or more units along the length of the polymer or the relationship of those units with other units in the same or a different polymer.

In view of the foregoing, with respect to claim 1 (and its dependent claims), Yeung et al. does not teach "distinguishing said signal from signals arising from exposure of *adjacent signal generating units of the polymer* to the station" because Yeung et al. does not analyze separate units of a single intact polymer. With respect to claims 130, 137 and 140 (and their dependent claims), Applicant has amended the claims to further clarify the linear analysis of polymers. Yeung et al. does not teach "measuring a polymer dependent impulse generated *as each of two individual units within the polymer*, each giving rise to a characteristic signal, pass by the station", as recited in claim 130, because Yeung et al. does not analyze separate units of a single intact polymer. For the same reasons, Yeung et al. also does not teach "*linearly analyzing each polymer*", as recited in claims 137 and 140.

New claim 162 (and its dependent claims) is not anticipated by Yeung et al. at least because Yeung et al. does not teach analysis of polymers bound with labeled unit specific markers.

Reconsideration and withdrawal of the rejection are respectfully requested.

Church et al., U.S. Patent No.: 5795782:

Claims 1, 2, 115-124, 130-136 and 161 are rejected under 35 U.S.C. § 102(b) as being anticipated by Church et al.

Claims 1, 115 and 130 have been amended to recite that the polymer is labeled with a light emissive compound. Support for this amendment can be found at least on page 34 lines 10-18. Church et al. does not teach labeling of polymers with light emissive compounds nor detection from such compounds. Rather Church et al. teaches ion conductance and interface distortion as readouts of polymer movement through a pore membrane. Ion conductance depends on current flowing between the two pools of buffer on either side of the membrane, and the polymer movement either increases or decreases this parameter. Interface distortion depends on the presence of an interface between two pools of immiscible liquid and the changes in that interface at the polymer moves through it. For at least these reasons, Church et al. does not anticipate the claims as amended.

New claim 162 (and its dependent claims) is not anticipated by Church et al. at least because Church et al. does not teach analysis of polymers bound with labeled unit specific markers.

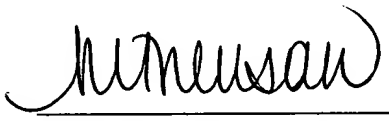
Reconsideration and withdrawal of the rejection are respectfully requested.

Conclusion

A Notice of Allowance is respectfully requested. The Examiner is requested to call the undersigned at the telephone number listed below if this communication does not place the case in condition for allowance.

If this response is not considered timely filed and if a request for an extension of time is otherwise absent, Applicant hereby requests any necessary extension of time. If there is a fee occasioned by this response, including an extension fee, that is not covered by an enclosed check, please charge any deficiency to Deposit Account No. 23/2825.

Respectfully submitted,



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